




## Method of producing petfood

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**Inventor:** REYNOLDS PHILIP  
**Applicant:** REYNOLDS PHILIP (IE)  
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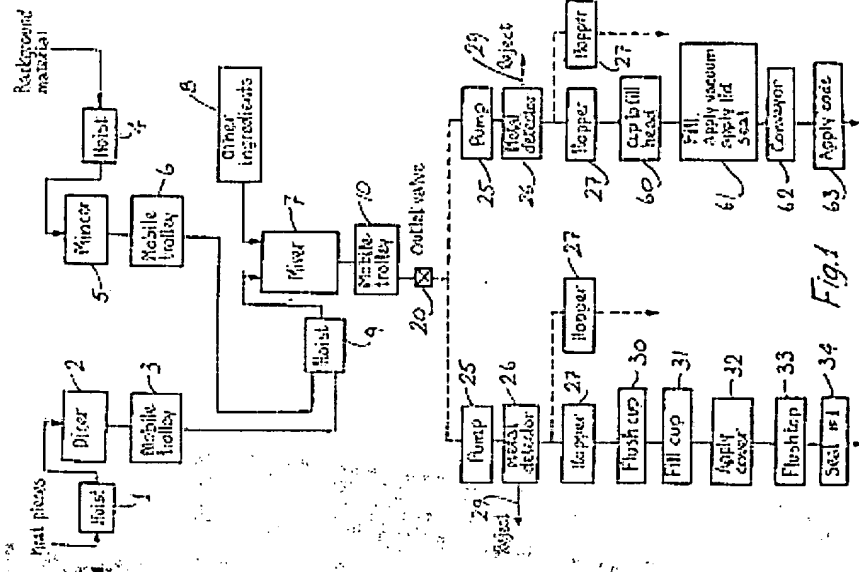
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### Abstract of GB2266218

A method for producing pet food in soft can containers comprising dicing chunks of meat which are discharged into a mobile trolley 3. Background material is minced in a mincer 5 and collected in a trolley 6. The diced meat and minced background material are mixed in a mixer 7 to which other ingredients including water, colouring, flavouring and thickening agents are added. The meat pieces are added last to the mixer to maintain the meat pieces in a coherent form. The mixed material is then discharged into a mobile trolley 10 having supports which are arranged when the trolley is in the rest position, to direct all the mixed material to an outlet 15 from which the material is pumped through a quick release flexible hose 22 to the input feed hopper 27 of a filling machine. After filling, a code is applied by an ink jet apparatus 40 and the containers are loaded onto trays for sterilisation,

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(71) Applicant

**Philip Reynolds**

1A Wellington Road, Dublin 4, Ireland

(72) Inventor

**Philip Reynolds**

(74) Agent and/or Address for Service

**Marks & Clerk**

57-60 Lincoln's Inn Fields, London, WC2A 3LS,  
United Kingdom

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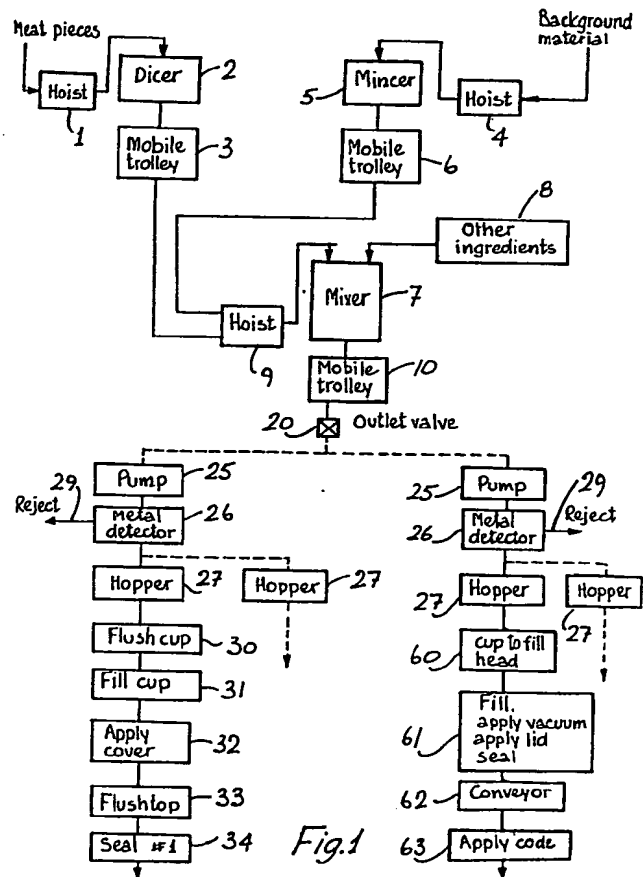
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(54) **Method of producing pet food**

(57) A method for producing pet food in softcan containers comprising dicing chunks of meat which are discharged into a mobile trolley 3. Background material is minced in a mincer 5 and collected in a trolley 6. The diced meat and minced background material are mixed in a mixer 7 to which other ingredients including water, colouring, flavouring and thickening agents are added. The meat pieces are added last to the mixer to maintain the meat pieces in a coherent form. The mixed material is then discharged into a mobile trolley 10 having supports which are arranged when the trolley is in the rest position, to direct all the mixed material to an outlet 15 from which the material is pumped through a quick release flexible hose 22 to the input feed hopper 27 of a filling machine. After filling, a code is applied by an ink jet apparatus 40 and the containers are loaded onto trays for sterilisation.



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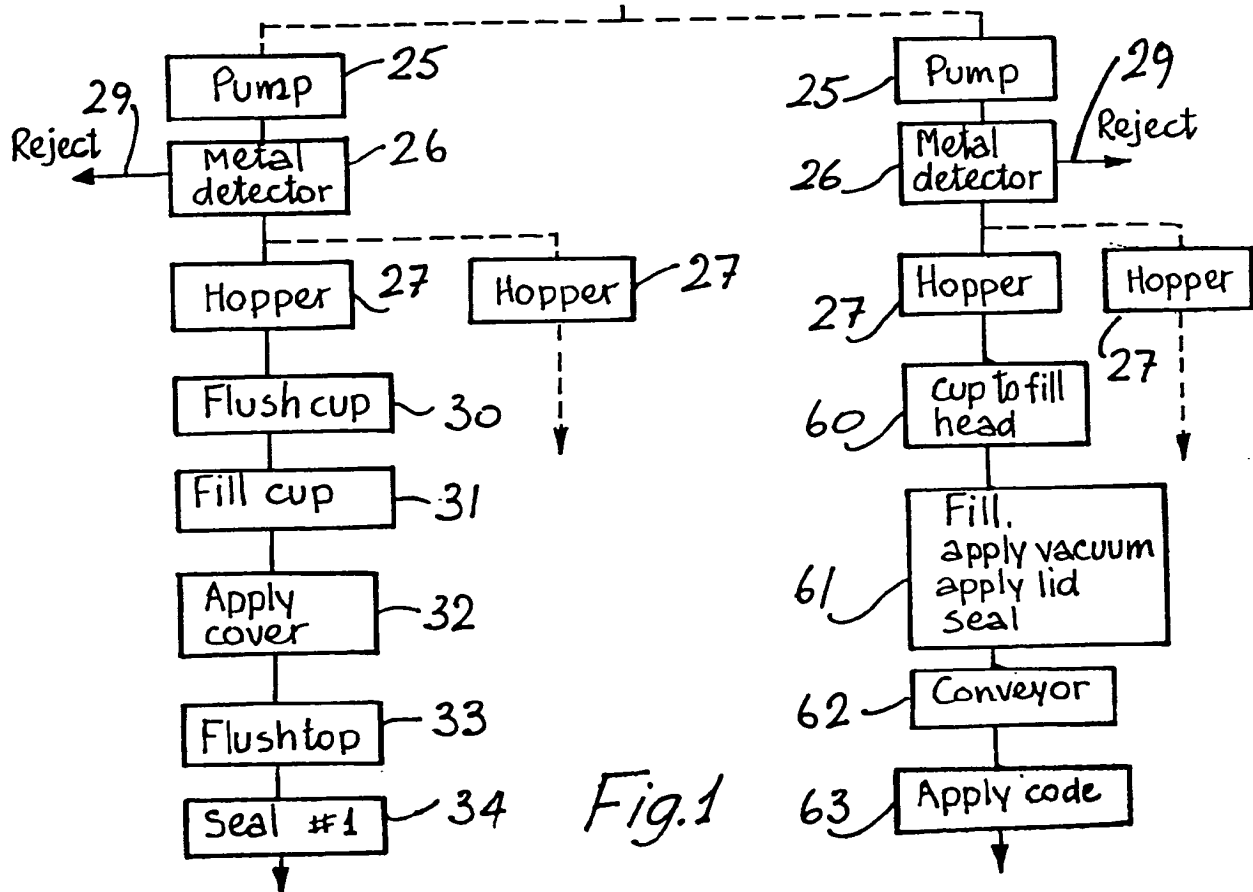
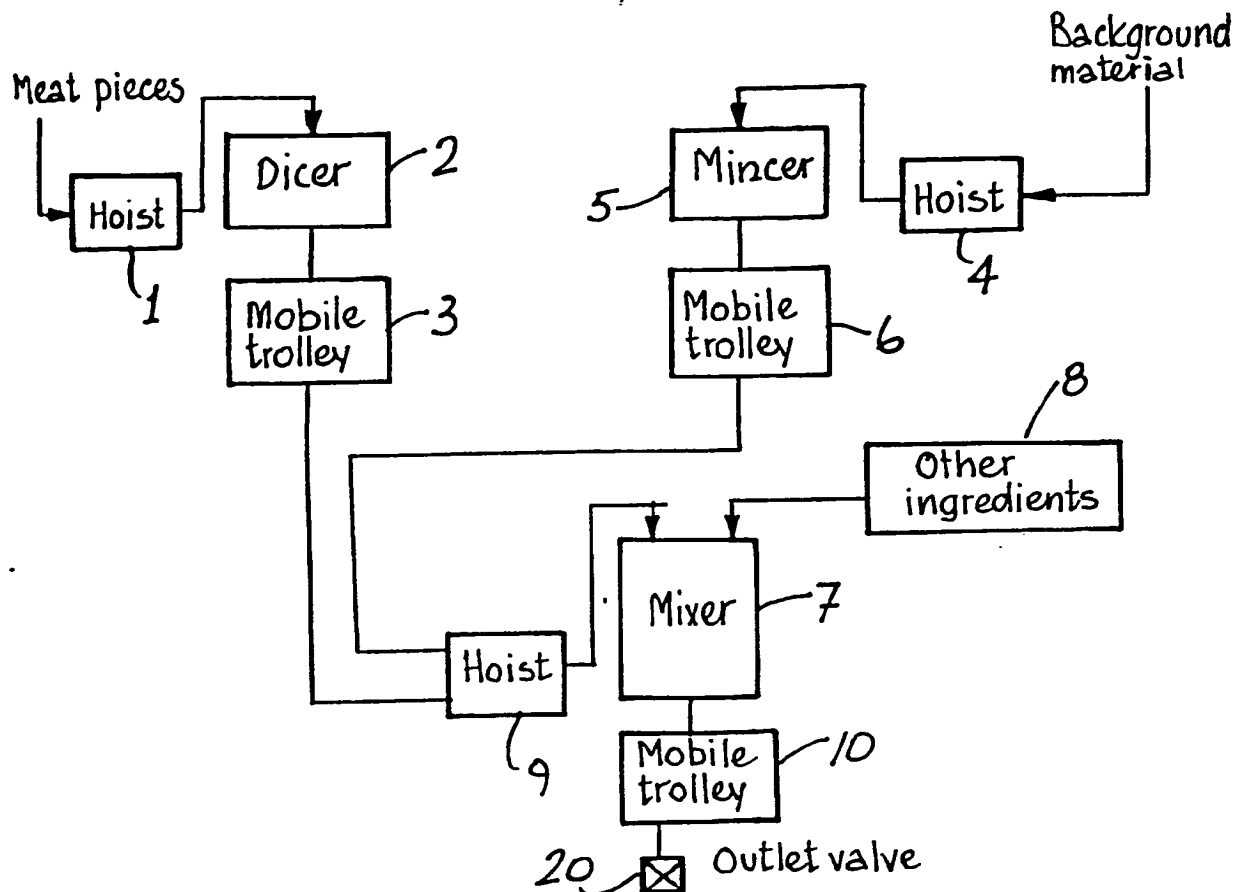
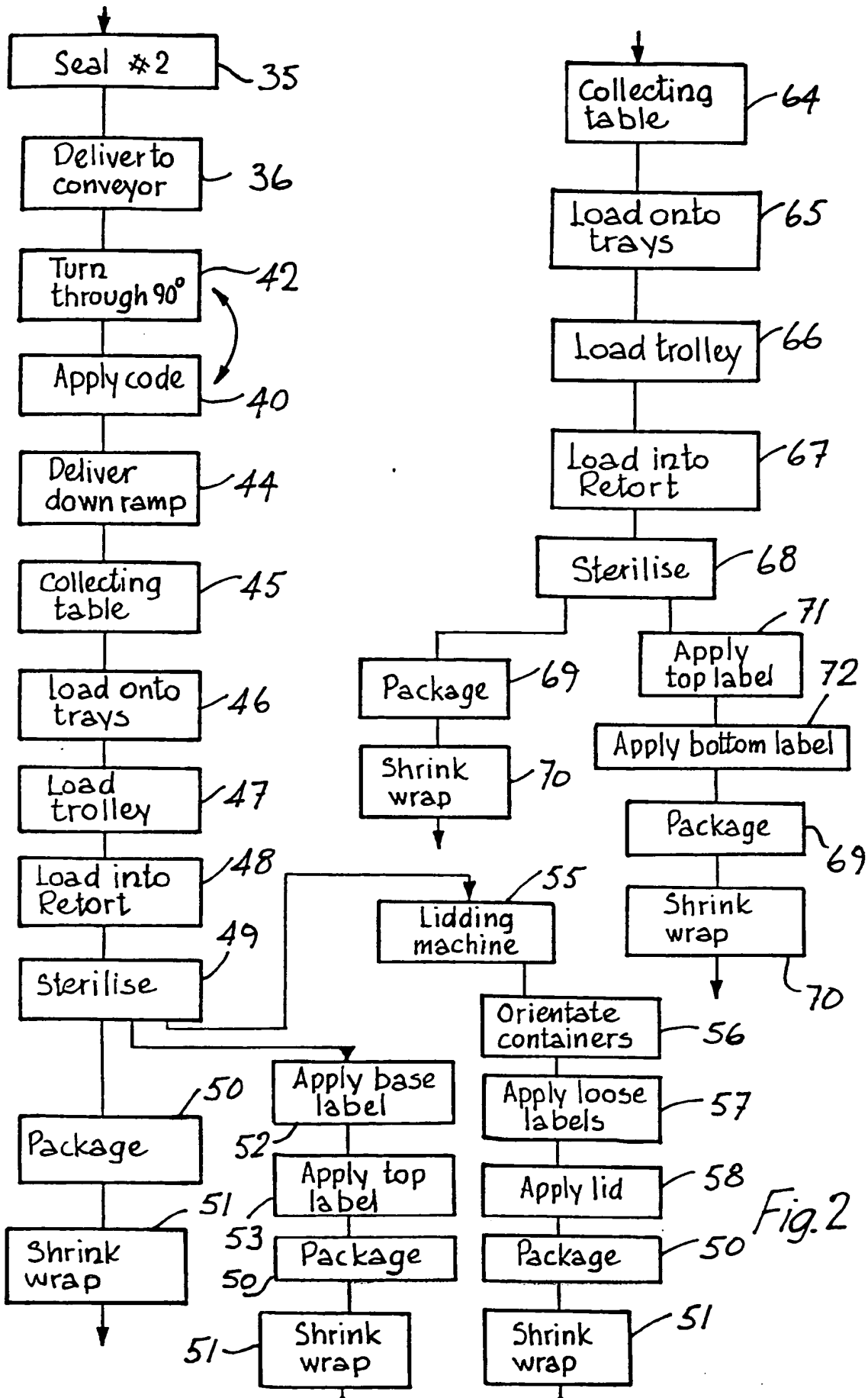
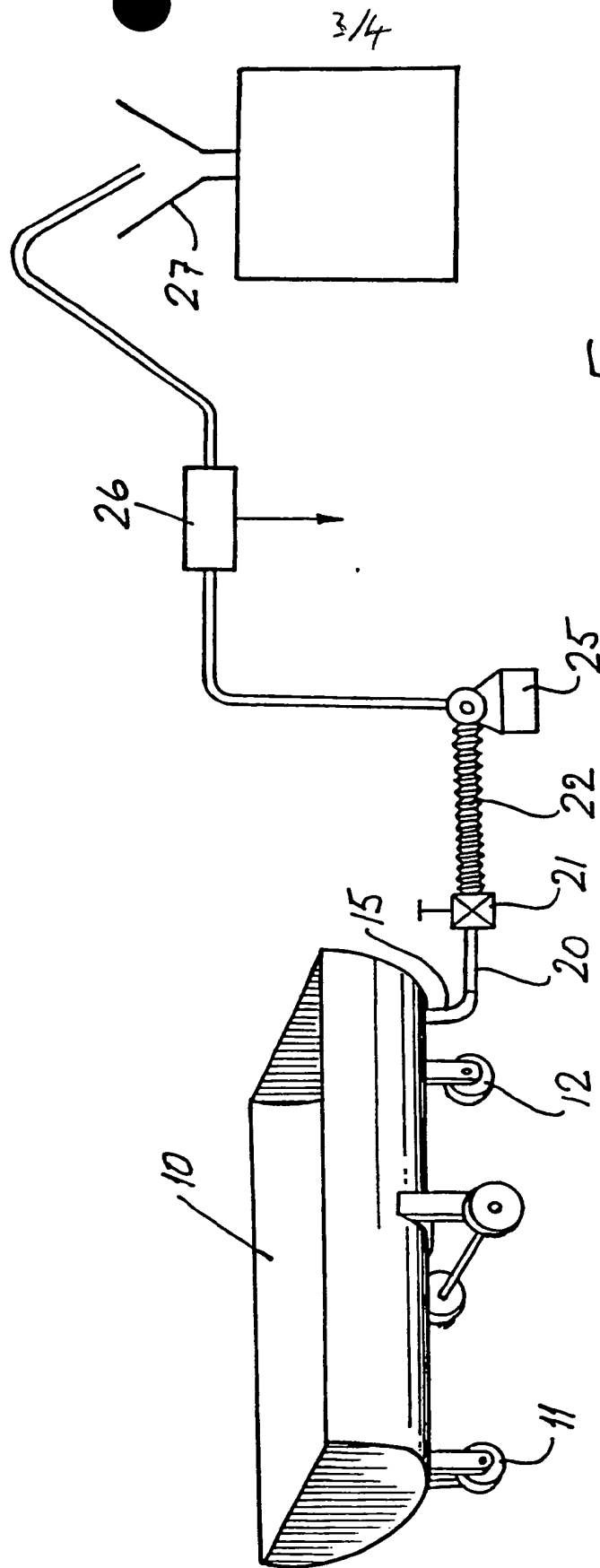


Fig.1







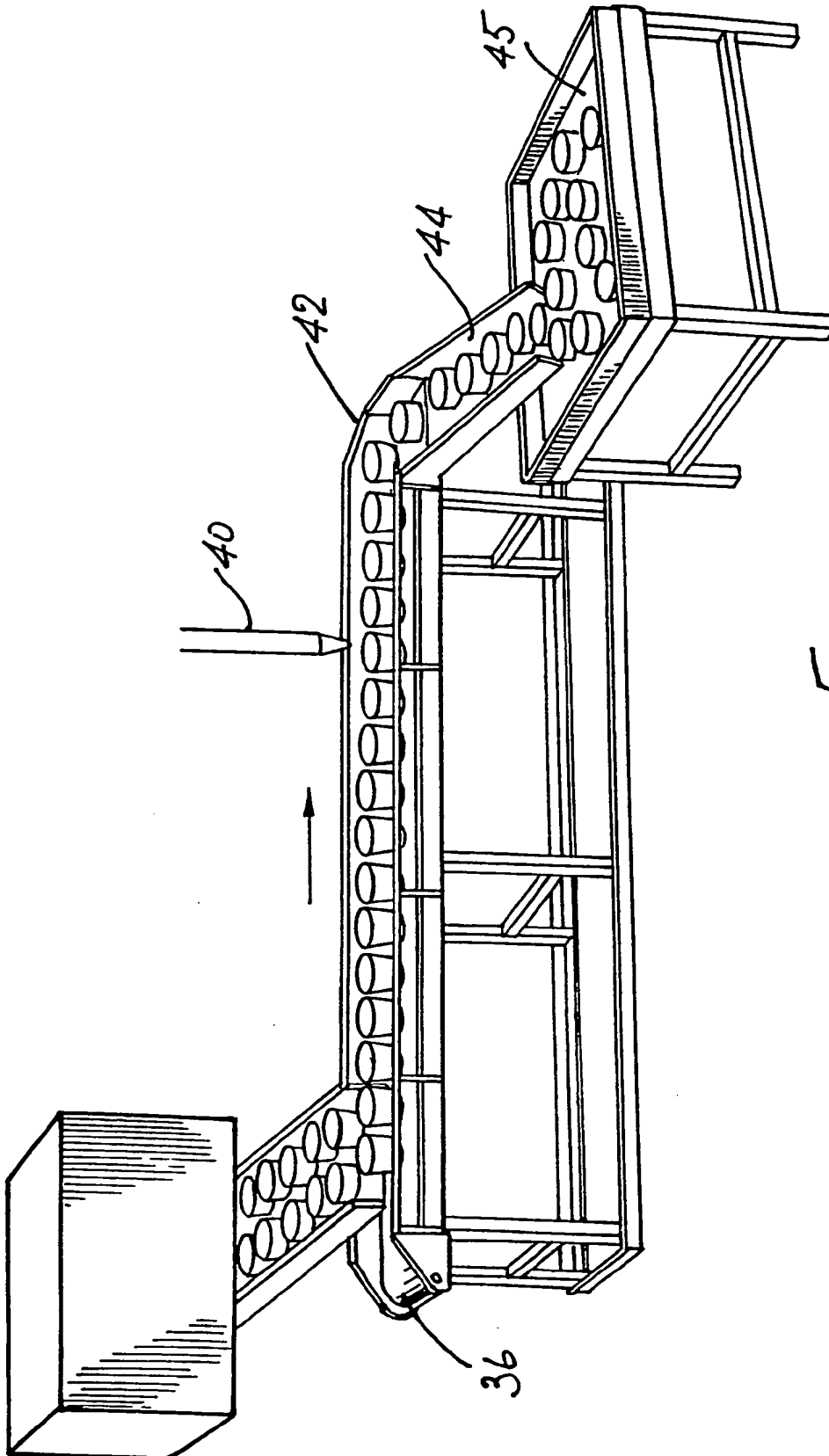


Fig.4

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"Food Processing"

The invention relates to a method of producing pet food in soft containers of plastics or foil material, hereinafter referred to as softcan containers.

For convenience, it is desirable to produce pet food for animals such as dogs or cats in portions for single serving or resealable multiple servings in softcan containers. There are, however, several problems in producing pet food in such containers particularly in a number of different softcan containers for different consumer requirements.

10 This invention is directed towards providing an integrated method of producing pet food in such softcan containers, particularly a range of different softcan containers.

According to the invention there is provided a method for producing pet food in softcan containers comprising the steps  
15 of:-

delivering meat to a dicing machine,

dicing the meat pieces to a desired size,

collecting the diced meat pieces in a first trolley,

delivering background material such as mechanically recovered meat to a mincer,

mincing the background material to a desired size,

5 collecting the minced background material in a second trolley,

adding water to a mixer,

delivering the minced background material, diced meat pieces and other ingredients into the mixer,

10 mixing the ingredients in the mixer to provide a mixture of desired consistency,

discharging the mixed material into a third trolley, the third trolley having a lower outlet with a valve means for mixed material and means for delivering the mixed  
15 material to the outlet,

storing the trolley with mixed material to provide a supply of mixed material, on demand,

on demand, connecting the outlet valve means to a feed line leading to a feed hopper of a filling machine,

delivering, on demand, mixed material from the trolley outlet to the feed hopper,

5 monitoring the mixed material in the feed line to the hopper to detect impurities in the mixture,

delivering reject material to a waste collecting means,

delivering a base cup part of a softcan container to a filling head of the filling machine,

10 filling the feed material into the cup part of the softcan container,

applying a top cover to the cup part of the container,

sealing the cover to the cup,

turning the containers so that the cover is lowermost,

15 loading the containers onto trays,

filling a rack with a plurality of trays of softcan containers,

loading the racks into a retort,

sterilising the containers, and

packaging a plurality of the containers.

In a particularly preferred embodiment of the invention, the  
5 outlet of the third trolley is connected by means of a  
flexible quick-connect coupling to the suction side of one of  
a number of feed pumps for delivery of mixed material to a  
desired filling machine feed hopper.

In an especially preferred embodiment of the invention, the  
10 third trolley is of arcuate shape in transverse cross section  
and is arranged for delivery of mixed material to the trolley  
outlet. Preferably, the mixed material trolley has wheel  
means and support means for supporting the trolley, in use, in  
a configuration for delivering substantially all of the  
15 contents of the trolley to the trolley outlet.

In one embodiment of the invention, the pet food is mixed in  
the mixer by:-

adding water to the mixture,

adding ingredients such as desired flavouring or  
20 colouring material to the water to form a base solution,

adding thickening agents such as gums and/or gels to the water to thicken the base solution,

adding background material to the thickened base solution, and

5           thereafter adding the meat pieces to the thickened base solution.

Preferably, the water is at a temperature of less than 15°C, the background material and meat pieces are minced and diced from frozen blocks, and the minced background material and  
10       meat pieces are not substantially thawed prior to addition to the water, on mixing.

Most preferably, the mixture is mixed in the mixer for between 5 and 20 minutes, most preferably, approximately 10 minutes.

In a preferred arrangement, the method includes the steps of:-

15           hoisting a block of frozen meat pieces into the dicer, and

hoisting a block of frozen background material into the mincer.

Preferably also the diced meat and minced background material trolleys are hoisted for delivery of the diced meat pieces and minced background material into the mixer through a top inlet.

In one embodiment of the invention the method includes the  
5 steps of:-

after filling, turning a container through substantially  
90°C,

applying a code to the containers, and

delivering the containers down a ramp for collection on  
10 a collecting table.

In one particularly preferred embodiment of the invention the container is of a plastics material and the method includes the steps of:-

flushing the base cup part of the container with carbon  
15 dioxide,

filling the base cup with mixed material,

applying a top cover to the base cup,

spot sealing the top cover to the base cup,

flushing the top portion of the container, above the  
filled mixture, with carbon dioxide,

heat sealing the top cover to the base cup, and  
delivering the container to a take-off conveyor.

5 In this case the method may include the steps of:-

applying a base label to the container, after  
sterilisation, and

applying a top label to the container.

Alternatively, the method may include the steps, after  
10 sterilisation, of:-

orientating the containers with their top cover  
uppermost, in a desired orientation,

applying a loose label on top of the cover, and

applying a transparent lid over the top cover and loose  
15 label.

In another embodiment of the invention the container may be of  
a metal foil material and the method includes the steps of



creating a chamber in which the base cup is filled with mixed material, a vacuum is applied, a lid is applied over the base cup, and the lid is sealed to the base cup. In one arrangement of this type, the method may include the steps of  
5 applying a base label to the container, and applying a top label to the container.

The invention also provides softcan containers of pet food whenever produced by the method of the invention.

The invention will be more clearly understood from the  
10 following description thereof, given by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is a block diagram of a first part of a method for producing pet food in softcan containers according to the invention,

15 Fig. 2 is a diagram of second part of the method,

Fig. 3 is a perspective view of a detail of one of the steps of the method, and

Fig. 4 is a perspective view of some of the steps in the method of the invention.

Referring to the drawings and initially to Figs. 1 and 2 thereof, there is illustrated a method for producing pet food in softcan containers comprising, in step 1, hoisting frozen blocks of meat into a dicer 2 where the meat is diced into chunks of desired size and discharged into a mobile trolley 3. Blocks of frozen background material such as mechanically recovered meat material are hoisted in step 4 into a mincer 5 where the background material is minced into minced pieces of desired size which are also collected in a mobile trolley 6. The pet food is mixed in a mixer 7 to which the diced meat pieces in the trolley 3 and the minced background material in the trolley 6 are delivered by means of a hoist 9. Other ingredients including water, colouring, flavouring, thickening agents such as gums and gels 8 are also added to the mixer 7.

In the method of the invention cold water at a temperature of approximately 15°C is first pumped into the mixer 7 and the colouring, flavouring and other powdered ingredients are added. An agitator is activated to disperse the powdered ingredients in the mixture and form a background solution to which thickening agents such as gums and gels are added to thicken the background solution. The background material from the trolley 6 is then delivered into the mixer followed finally by the meat pieces from the trolley 3. The meat pieces are added last to ensure that the pieces are not broken up by the mixing process. This is extremely important not only for the consistency of the mixed product, but also for

it's appearance and hence customer appeal. Typically, the ingredients are mixed together in a mixer for between 5 and 20 minutes, most preferably approximately 10 minutes, after which they are discharged into a mobile trolley 10 which is  
5 illustrated in more detail in Fig. 3.

Referring particularly to Fig. 3, the mobile trolley 10 is of generally arcuate shape in transverse cross section and has a discharge outlet 15 in the floor thereof of one end. The trolley 10 is provided with wheeled supports 11, 12 which are  
10 arranged, when the trolley is in the rest position, to direct all the mixed material in the trolley 10 to the outlet 15. The outlet 15 is provided with a valve 20 with a quick connect coupling 21 to which a flexible hose 22 is attached at one end. The other end of the hose 22 is attached to a quick  
15 release coupling at a suction side of one or a number of delivery pumps 25. The mixed material is pumped through a metal detector means 26 to the feed hopper 27 of a filling machine. Reject material, as determined by the metal detector 26, is delivered to waste along waste lines 29.

20 For filling softcans of plastics material, a base cup of the container is first flushed in step 30 with carbon dioxide and the cup is filled in the filling machine in a filling step 31. In step 32, a plastics cover is applied over the filled cup 31 and is spot sealed by heat welding to the base cup. After  
25 filling, in step 33, the space between the top of the pet food

in the cup of the container and the cover is flushed with nitrogen dioxide and the cover is sealed to the cup in first and second sealing steps 34, 35.

The sealed plastics softcan container of pet food material is then delivered onto a conveyor in step 36 which directs the top cover of the container under a code applying ink jet apparatus 40 as will be particularly apparent from Fig. 4. The coded containers then strike against an end stop edge 42 which turns the containers through substantially 90° and delivers them in step 44 down a ramp 43 to a collecting table 44. The containers are then turned over so that their top covers are lowermost and loaded in step 46 onto trays which are loaded onto trolleys 47 for delivery into a retort in step 48. In the retort, the containers of pet food are sterilised in step 49. Depending on customer requirements, sterilised softcan containers, if they are specifically printed, when encoded, may be passed directly to a packaging step 50 in which they are loaded into cartons and shrunk wrapped in step 51, and palletised ready for shipment. In the case of blank containers, after sterilisation, a base label may be applied to the container in a step 52, followed by applying a top label in step 53 prior to packaging 50. In a further alternative arrangement, the containers may be passed to a lidding machine 55 in which the containers are first orientated in a desired orientation in step 56. A loose label may be dropped onto the cover of the container in step 57 and

in step 58 a transparent lid is applied and snap fitted onto the softcan container to retain the loose label in position prior to packaging and wrapping.

In the case of softcan containers of metal foil such as aluminium foil material, a cup part of the container is presented to a filling head in step 60, and in step 61, a chamber is created in which pet food is filled into the cup, a vacuum is applied, the lid is applied to the cup and the lid is sealed to the cup. The filled foil softcan containers are then conveyed in step 62 to a code applying station 63. The softcan containers are then delivered to a collecting table 64 from which the foil softcans are loaded, with their covers or lids lowermost, onto trays in step 65. The trays are loaded into trolleys in step 66 which in turn, in step 67, are loaded into a retort for sterilisation in step 68. The sterilised foil softcan containers may be packaged directly into boxes in step 69 which are subsequently shrunk wrapped and palletised in step 70 or top and bottom labels may be applied in steps 71 and 72 respectively prior to packaging in step 69.

The invention provides an integrated method for producing pet food in softcan containers in a substantially continuous manner. The arrangement of steps gives considerable flexibility, particularly in relation to the filling operations, and especially in relation to producing a range of pet food in different types of softcan containers. For

example, because mixed material is not delivered directly from the mixer to the filling machine but rather through a mobile trolley, there is considerable flexibility as to which of the filling machines may be supplied with the mixed material. A  
5 stock of mixed material may also be built up to provide a substantially constant supply of pet food to the filling machines on demand. More importantly, in the event of operating difficulties arising with filling machines, because of the provision of mobile feed trolleys the capacity of the  
10 filling hopper for the filling machine need only be relatively small. Thus, in the event of difficulties arising, the machine can be very quickly stopped, the fault rectified, and the machine re-started again. This represents a very substantial cost saving in processing efficiency.

15 By way of further example of the very substantial processing efficiency represented by the method of the invention, because of the arrangement of conveyor ramp and collecting table at the outlet of the filling machines, regardless of the speed of the filling machines, the containers may be directed away from  
20 the machine as required to be coded, collected and loaded onto trays for sterilisation. There is no hold up because the containers can be led away rapidly from the machine. Accordingly the filling machines may be run to their full operating capacity.

Many variations of the specific embodiments of the invention will be readily apparent and accordingly the invention is not limited to the embodiments hereinbefore described which may be varied in both construction and detail.

CLAIMS

1. A method for producing pet food in softcan containers comprising the steps of:-

delivering meat to a dicing machine,

5 dicing the meat pieces to a desired size,

collecting the diced meat pieces in a first trolley,

delivering background material such as mechanically recovered meat to a mincer,

mincing the background material to a desired size,

10 collecting the minced background material in a second trolley,

adding water to a mixer,

delivering the minced background material, diced meat pieces and other ingredients into the mixer,

15 mixing the ingredients in the mixer to provide a mixture of desired consistency,



discharging the mixed material into a third trolley,  
the third trolley having a lower outlet with a valve  
means for mixed material and means for delivering  
the mixed material to the outlet,

5 storing the trolley with mixed material to provide  
a supply of mixed material, on demand,

on demand, connecting the outlet valve means to a  
feed line leading to a feed hopper of a filling  
machine,

10 delivering, on demand, mixed material from the  
trolley outlet to the feed hopper,

monitoring the mixed material in the feed line to  
the hopper to detect impurities in the mixture,

15 delivering reject material to a waste collecting  
means,

delivering a base cup part of a softcan container to  
a filling head of the filling machine,

filling the feed material into the cup part of the  
softcan container,

applying a top cover to the cup part of the  
container,

sealing the cover to the cup,

5 turning the containers so that the cover is  
lowermost,

loading the containers onto trays,

filling a rack with a plurality of trays of softcan  
containers,

loading the racks into a retort,

10 sterilising the containers, and

packaging a plurality of the containers.

2. A method as claimed in claim 1 wherein the outlet of the  
third trolley is connected by means of a flexible quick-  
connect coupling to the suction side of one of a number  
15 of feed pumps for delivery of mixed material to a desired  
filling machine feed hopper.

3. A method as claimed in claim 1 or 2 wherein the third  
trolley is of arcuate shape in transverse cross section

and is arranged for delivery of mixed material to the trolley outlet.

4. A method as claimed in claim 3 wherein the mixed material trolley has wheel means and support means for supporting the trolley, in use, in a configuration for delivering substantially all of the contents of the trolley to the trolley outlet.

5. A method as claimed in any preceding claim wherein the pet food is mixed in the mixer by:-

10 adding water to the mixture,

adding ingredients such as desired flavouring or colouring material to the water to form a base solution,

15 adding thickening agents such as gums and/or gels to the water to thicken the base solution,

adding background material to the thickened base solution, and

thereafter adding the meat pieces to the thickened base solution.

6. A method as claimed in claim 5 wherein the water is at a temperature of less than 15°C, the background material and meat pieces are minced and diced from frozen blocks, and the minced background material and meat pieces are not substantially thawed prior to addition to the water, on mixing.

7. A method as claimed in claim 5 or 6 wherein the mixture is mixed in the mixer for between 5 and 20 minutes.

8. A method as claimed in claim 7 wherein the mixture is mixed for approximately 10 minutes.

9. A method as claimed in any preceding claim including the steps of:-

hoisting a block of frozen meat pieces into the dicer, and

15 hoisting a block of frozen background material into the mincer.

10. A method as claimed in any preceding claim wherein the diced meat and minced background material trolleys are hoisted for delivery of the diced meat pieces and minced background material into the mixer through a top inlet.

11. A method as claimed in any preceding claim wherein the method includes the steps of:-

after filling, turning a container through substantially 90°C,

5 applying a code to the containers, and

delivering the containers down a ramp for collection on a collecting table.

12. A method as claimed in any preceding claim wherein the container is of a plastics material and the method  
10 includes the steps of:-

flushing the base cup part of the container with carbon dioxide,

filling the base cup with mixed material,

applying a top cover to the base cup,

15 spot sealing the top cover to the base cup,

flushing the top portion of the container, above the filled mixture, with carbon dioxide,

heat sealing the top cover to the base cup, and  
delivering the container to a take-off conveyor.

13. A method as claimed in claim 12 including the steps of:-

5                   applying a base label to the container, after  
sterilisation, and

applying a top label to the container.

14. A method as claimed in claim 12 wherein the method, after  
sterilisation, includes the steps of:-

10                   orientating the containers with their top cover  
uppermost, in a desired orientation,

applying a loose label on top of the cover, and

applying a transparent lid over the top cover and  
loose label.

15                   15. A method as claimed in any of claims 1 to 11 wherein the  
container is of a metal foil material and the method  
includes the steps of:-

creating a chamber in which the base cup is filled  
with mixed material, a vacuum is applied, a lid is

applied over the base cup, and the lid is sealed to the base cup.

16. A method as claimed in claim 15 wherein, after sterilisation, the method includes the steps of:-

5           applying a base label to the container, and

          applying a top label to the container.

17. A method substantially as hereinbefore described with reference to the accompanying drawings.

10       18. Softcan containers of pet food whenever produced by a method as claimed in any preceding claim.

23

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application Number

GB 9212543.4

**Relevant Technical fields**

(i) UK CI (Edition K ) (A2B) BMM2 BMM9 BMA9 BKP9 BKC  
BKX BKW  
(A2D) DPJ  
(ii) Int CI (Edition 5 ) A23K  
A23L

**Search Examiner**

B J GARDNER

**Databases (see over)**

(i) UK Patent Office

(ii) NONE

**Date of Search**

21 AUGUST 1992

Documents considered relevant following a search in respect of claims 1 TO 18

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	NONE	



Category	Identity of document and relevant passages	Relevant to claim(s)

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